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Misuse of DNA Evidence Is Not Always a “Harmless Error”: DNA Evidence, Prosecutorial Misconduct, and Wrongful Conviction

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MISUSE OF DNA EVIDENCE IS NOT ALWAYS A “HARMLESS ERROR”: DNA EVIDENCE, PROSECUTORIAL MISCONDUCT, AND WRONGFUL CONVICTION

By Kimberly Cogdell Boies¹

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I. INTRODUCTION — DNA, HARMLESS ERROR, AND MISCONDUCT IN CONTEXT

The purpose of this article is to highlight the areas of DNA analysis that make it less reliable than most people believe and to show that because of this, misconduct related to DNA evidence should not receive harmless error review. The most reliable evidence sees no color, gender or socioeconomic status. Evidence can be an imperfect measure and manipulated by the pride and prejudice of those who control it. The recent explosion in the number of exonerations for wrongful conviction highlights a major flaw in the system – prosecutorial misconduct. This misconduct can take the form of presenting unreliable evidence, withholding exculpatory evidence or misusing scientific evidence. Evidence is often obtained through questionable practices, and prosecutors may then “cherry-pick” which evidence will be presented at trial. Add to this mix DNA evidence, which is widely misunderstood.² Wrongful conviction, prosecutorial misconduct and the harmless error doctrine are intricately intertwined. Prosecutors are allowed to make mistakes, these mistakes may lead to wrongful conviction and the harmless error doctrine is used to excuse the mistakes.³ When misunderstanding is combined with misconduct, problems are bound to ensue.

Even when willful prosecutorial misconduct occurs in a trial that ultimately ends with a conviction, the behavior is only subject to the harmless error review, and prosecutors are usually immune from liability for their conduct.⁴ The Federal Rules of Criminal Procedure state that “any error, defect, irregularity or variance which does not affect substantial rights shall be disregarded.”⁵ The term “harmless error” is often used to nullify the effect of a prosecutor’s misconduct. If the conviction could be made using other evidence that excludes the

2. See generally, Michael Lynch & Ruth McNally, “Science,” “Common Sense,” and DNA evidence: A Legal Controversy About the Public Understanding of Science, 12 PUB. UNDERSTANDING SCI. 83 (2003).

3. The term mistake here is used to describe both intentional and unintentional errors made by prosecutors which may or may not impact the outcome of the case.

4. See generally, Margaret Johns, *Reconsidering Absolute Prosecutorial Immunity*, 2005 BYU L. REV. 53, 54–67 (2005) (discussing prosecutorial misconduct and immunity and arguing against immunity).

5. FED. R. CRIM. P. 52(a).

error, the error will be deemed harmless. Unfortunately, the other evidence relied on to determine whether the outcome of the trial would be different may be less reliable.⁶ The harmless error doctrine offers a remedy for prosecutorial misconduct that is clearly prejudicial to the defendant.⁷

Much of the focus surrounding DNA evidence relates to wrongful conviction and exoneration.⁸ DNA is considered more reliable than other forms of scientific evidence.⁹ Given the widespread belief in the reliability of DNA evidence, prosecutors must be held to the highest standard, when DNA evidence is involved.¹⁰ Prosecutorial misconduct related to DNA evidence cannot be tolerated. When DNA evidence is coupled with the common prosecutorial misconduct of forced confessions, unreliable eye witness testimony, and prosecutorial zeal, more wrongful convictions are inevitable.¹¹ Misuse of DNA evidence should rarely receive harmless error review because of the substantial impact that DNA evidence may have on the outcome of the case. There are some instances where the identity of the perpetrator is not in question such as when defenses are offered, i.e. consent in a rape case or self-defense in a murder case. In these situations, problems with DNA evidence are harmless because there is no dispute as to the identity of the perpetrator. However, absent situations where the identity of the defendant is not a central issue to the case, the harmless error analysis should not apply to misconduct related to DNA evidence. The unquestioned reliability of DNA evidence in the hands

6. If the error is excluded and there is still eyewitness testimony, this evidence may be enough to support the verdict. See generally, Brandon Garrett, *Innocence, Harmless Error, and Federal Wrongful Conviction Law*, 2005 WIS. L. REV. 35 (2005) (describing the history of the harmless error doctrine and how it is applied. The article also discusses eyewitness misidentification).

7. Bradley Tennis, *Uniform Ethical Regulation of Federal Prosecutors*, 120 YALE L. J. 144, 177, (2010) (discussing the ethical responsibilities of prosecutors and the difficulty reconciling conflicting ethical regulations).

8. See generally EDWARD CONNERS, THOMAS LUNDREGAN, NEAL MILLER, & TOM McEWEN, *CONVICTED BY JURIES, EXONERATED BY SCIENCE: CASE STUDIES IN THE USE OF DNA EVIDENCE TO ESTABLISH INNOCENCE AFTER TRIAL*, Research Report (Nat'l Inst. of Justice 1996).

9. See generally, *id.*

10. A higher standard should be required because of the general lack of understanding surrounding DNA evidence, the potential for misuse and the possibility of wrongful conviction. Prosecutorial misconduct and faulty scientific evidence is the cause of many wrongful convictions and this trend can be prevented in the area of DNA misconduct by excluding errors involving DNA evidence from harmless error review.

11. Misconduct has occurred related to forced confessions on the part of police and prosecutors. Eyewitness testimony has been proven to be unreliable in many instances and is the leading cause of wrongful conviction. Prosecutors are often required to maintain conviction rates and may be viewed negatively for not obtaining a conviction. With these identified issues in existence, misconduct related to DNA evidence will make a bad situation worse. The underlying issues of misconduct and prosecutorial accountability should be corrected before allowing DNA evidence to receive harmless error review.

of conviction oriented prosecutors is a dangerous combination. DNA evidence misconduct and the harmless error doctrine do not mix.

Even when prosecutorial misconduct leads to wrongful conviction, the prosecutor may be immune from suit.¹² This trilogy¹³ creates systematic invisibility. Those whose guilt is predetermined by overzealous prosecutors are destined for guilty verdicts by any means necessary. It is imperative that misconduct and mistakes related to the identity of the accused, involving DNA evidence not be considered "harmless."

II. DNA EVIDENCE

There is widespread confusion about DNA evidence among the public, the legal community and the scientific community. DNA evidence alone should not support a conviction if it is not presented in the context of other evidence.¹⁴ The general public has misconceptions about the reliability and infallibility of DNA evidence and often does not understand the statistical significance of what DNA evidence actually proves.¹⁵ Attorneys often use statistics to help describe the interpretation of DNA evidence in terms the jury will understand.¹⁶ Additionally, there is a lack of understanding in the legal community about the interpretation of DNA evidence and there are opportunities for misinterpretation and misuse of the information at trial as a result.

Not only is the legal system and general public confused about the science, but the scientific community also disputes the validity of some scientific evidence.¹⁷ That National Academies of Science produced a report raising many issues related to forensic scientific evidence and regulation of forensic science at trial.¹⁸ Notwithstanding the misconceptions, juries are more likely to convict when the prosecution

12. Johns, *supra* note 4, at 54.

13. The term trilogy here refers to wrongful conviction, prosecutorial misconduct and the harmless error doctrine

14. *See generally*, Andrea Roth, *Safety in Numbers? When DNA Alone is Enough to Convict*, 85 N.Y.U. L. REV. 1130 (2010).

15. *See generally*, Lynch & McNally, *supra* note 2 at 97 (describing how statistical presentation may confuse jurors).

16. *See id.* (details the use of DNA evidence in the *Regina v. Adams* case and the use of statistics to interpret the data).

17. *See* COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIENCE CMTY., COMM. ON SCIENCE, TECH., & LAW, COMM. ON APPLIED & THEORETICAL STATISTICS, NAT'L RESEARCH COUNCIL, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 7-8 (Nat'l Acad. Press 2009) (report developed by the National Academies of Science that explores the use of forensic science as evidence in litigation as well as types of forensic evidence. It suggests that the additional oversight is needed and that more uniform rules should be developed regarding all types of scientific evidence. The report questions the validity of some commonly accepted scientific evidence as unreliable.).

18. *See id.* at 3-4.

presents DNA evidence.¹⁹ DNA is currently seen as the gold standard of forensic science.²⁰ Yet, DNA has the same likelihood for human error as do other types of evidence.²¹ Issues related to collection, interpretation and application are applicable to DNA evidence.²² DNA evidence is highly scrutinized by the scientific community for many of these reasons.²³ Therefore, the harmless error doctrine should not be applied to DNA evidence.

The rise in the use of genetic testing and DNA in the criminal justice system at first glance can provide a tremendous benefit to law enforcement officers and district attorneys but it is not without its own challenges.²⁴ DNA evidence is currently used to identify criminals and to exonerate the innocent.²⁵ DNA evidence can conclusively eliminate a suspect and establish factual innocence of a defendant.²⁶ Although the use of DNA evidence is helpful in many instances, it may complicate the judicial process. There are limits to the information that is given by DNA evidence.²⁷ In cases where there is more than one suspect, finding DNA from only one person does not automatically exclude the second person.²⁸ Based on how the information is presented by prosecutors, the evidence may be misunderstood by juries. Other common problems regarding the admissibility and reliability of DNA evidence include: lab proficiency, contamination, lack of written protocols, accreditation, technique, quality control, chain of custody and temperature regulation.²⁹ During the process of DNA

19. See Honorable Donald E. Shelton, *The CSI Effect: Does it Really Exist*, NAT'L INST. JUST., No. 259 (March 2008), available at <http://www.ojp.usdoj.gov/nij/journals/259/csi-effect.htm> (stating that the CSI effect causes jurors to wrongfully acquit guilty defendants when no scientific evidence is presented) (last visited Nov. 5, 2010).

20. Joel D. Lieberman et.al., *Gold versus Platinum: Do Jurors Recognize the Superiority and Limitations of DNA Evidence Compared to Other Types of Forensic Science*, 14 PSYCHOL. PUB. POL'Y & L. 27, 29 (2008).

21. *Id.* at 31.

22. *Id.*

23. See generally, Paul Gianelli, *Scientific Evidence in Criminal Prosecutions: A RETROSPECTIVE*, 75 BROOK. L. REV. 1137 (2010).

24. DNA evidence can conclusively determine guilt under certain circumstances. See, Preservation of Evidence, The Innocence Project, (discussing the need to preserve DNA evidence because of its ability to conclusively prove innocence or guilt).

25. See generally, INNOCENCE PROJECT, www.innocenceproject.org (last visited March 08, 2011).

26. E.g., Jennifer Eckroth, *Tainted DNA Evidence and Post-Conviction Reversals in Houston, Texas: Suggested Solutions to Curb DNA Evidence Abuse*, 31 Am. J. Crim. L. 433, 436, 437 (2004) (describing the accuracy of DNA evidence and the use of biological samples to exclude a defendant).

27. A variety of factors contribute to what information can be obtained from DNA evidence. Some of these factors include sample size, contamination, and the type of test performed. See Evidence Collection and Preservation, DNA Initiative, <http://www.dna.gov/audiences/investigators/know/collection>; George W. Clarke, *Effective Use of DNA Evidence in Jury Trials*, 1 PROFILES IN DNA 2, 8(1997), available at http://www.promega.com/profiles/102/ProfilesinDNA_102_07.pdf.

28. Eckroth, *supra* note 26 at 437.

29. Lieberman, *supra* note 20, at 31.

analysis, three places where errors may occur are: (1) the collection of the samples; (2) the crime lab procedures; and (3) presentation of the evidence by the prosecutor.

A. *DNA Analysis and Types of DNA Tests*

DNA testing involves chromosomes, genes, alleles and loci. Each human has 23 pairs of chromosomes.³⁰ Each chromosome contains a long DNA molecule.³¹ A gene is made up of a small portion of a chromosome.³² There are approximately 23,000 genes in each person.³³ An individual inherits two alleles from each gene.³⁴ The term locus, the singular form of loci, represents a specific physical location of a gene on a chromosome.³⁵ It would be extremely useful for jurors and attorneys to have a basic understanding of science surrounding DNA and DNA testing to make informed decisions about DNA evidence.

This foundational scientific knowledge is often lacking in the general public. "DNA match statistics are calculations that describe the likelihood of a coincidental match between a person suspected of crime and the DNA sample found at a crime scene. These numbers are difficult for laypeople to understand, and the methodology behind them is the subject of scientific debate."³⁶

Courts are including the process of DNA analysis in their opinions. In *U.S. v. Chischilly*, the court eloquently summarized relevant points of science related to DNA evidence:

"An allele is 'any alternative form of a gene that can occupy a particular chromosomal locus. In humans and other diploid organisms there are two alleles, one on each chromosome of a homologous pair.' Forensic DNA tests compare allele combinations at loci where the alleles tend to be highly variable across individuals and ethnic groups. If there is no match between the alleles from the evidence DNA and the potential suspect's DNA, the suspect is generally ruled out as the source of the evidence, unless the failure is attributable to inadequate test conditions or contaminated samples. If there is a match, analysts use the frequency of the alleles' appearance in the relevant population

30. National Human Genome Research Institute, National Institutes of Health, <http://www.genome.gov/glossary/index.cfm?id=33>.

31. *Id.*

32. *Id.*

33. *Id.*

34. National Human Genome Research Institute, National Institutes of Health, <http://www.genome.gov/glossary/index.cfm?id=4>.

35. National Human Genome Research Institute, National Institutes of Health, <http://www.genome.gov/glossary/index.cfm?id=116>.

36. See Sarah M. Ruby, *Checking the Math: Government Secrecy and DNA Databases*, 6 ISJLP 257 (2010).

to calculate the probability that another person could have the same pattern of allele pairs.”³⁷

The *Brim v. State* case gives a description of the process of DNA analysis.³⁸ The court’s discussion of the DNA analysis is useful because it describes the process in a way that a lay person can understand it. The problem with using scientific articles to discuss DNA analysis is that they tend to focus on a very minute aspect of the process without truly giving a broad overview. In *Brim*, the process of DNA analysis is divided into two prongs: (1) creating the data for statistical analysis and (2) DNA statistical analysis, and is then further divided into eight steps under the first prong and two steps in the second prong.³⁹ The first prong leads to the exclusion of the suspect but not the probability of the match.⁴⁰ The second prong allows the determination of the likelihood that the sample came from this defendant.⁴¹

Despite extensive research and use of DNA evidence, there are no generally accepted or national standards for determining what constitutes a match.⁴² In fact, two different analysts at different labs may draw different conclusions when analyzing alleles and artifacts when the DNA sample is tested.⁴³ This causes problems because the DNA evidence is so heavily relied upon. Jurors do not realize that there is a margin for error when interpreting DNA evidence.

There are several types of processes used for DNA testing—restriction fragment length polymorphism, polymerase chain reaction and short tandem repeats. The processes will be described generally below. The description of the types of testing is not all encompassing, however, it provides context to discuss the reasons why DNA testing is less reliable than most believe.

1. Is Restriction Fragment Length Polymorphism Testing Still Viable?

The restriction fragment length polymorphism (RFLP) testing procedure is a procedure used in DNA analysis.⁴⁴ This process is less

37. *United States v. Chischilly*, 30 F.3d 1144, 1153 (9th Cir. 1994).

38. *Brim v. State*, 779 So. 2d 427, 438 (Fl. 2000).

39. *See e.g.*, *Brim*, 779 So. 2d at 437, 442 (2000) (The eight steps of the first prong are: (1) collection of physical evidence, (2) laboratory extraction of pure DNA for testing, (3) fragmenting the pure DNA, (4) electrophoresis, (5) southern blotting, (6) selection of multiple probes, (7) probing and creating the autorad, and (8) testing for exclusion. The two steps of the second prong are: (1) creating a population frequency table and (2) calculating a probability for use in a particular case).

40. *See, id.* at 442.

41. *See, id.* at 447.

42. Jay D. Aronson & Simon Cole, *Science and the Death Penalty: DNA, Innocence and the Debate over Capital Punishment in the United States*, 34 LAW & SOC. INQUIRY 603, 612 (2009).

43. *Id.* at 613.

44. DNA Forensics, http://www.ornl.gov/sci/techresources/Human_Genome/elsi/forensics.shtml (last visited March 2, 2011).

commonly used now than polymerase chain reaction testing because of the requirement of a large amount of DNA.⁴⁵ However, it is included to show the evolution of methods of DNA testing and the problems associated with testing methods. Restriction Fragment Length Polymorphism testing is a procedure to analyze variable length fragments of DNA using a restriction digest or cut of the DNA at specific recognition sites.⁴⁶ The sample fragments are then separated using electrophoresis.⁴⁷ Once the DNA fragments are separated, a probe is attached to the sample that binds complementarily to a sequence in the DNA sample.⁴⁸

Unlike the polymerase chain reaction analysis, the RFLP testing requires a high-quality crime scene sample with a large quantity of DNA.⁴⁹ This type of testing compares the uniqueness of the individual's DNA to the sample DNA.⁵⁰ However, RFLP testing suffers from two major flaws that affect the accuracy of its results. The first critical flaw is that allele sizing imprecision requires testing results to be stored and statistical measures employed for interpretation.⁵¹ Secondly, RFLP testing is sensitive to DNA degradation, which is often associated with environmentally exposed specimens. As a result, RFLP testing has been predominantly dismissed in favor of the more efficient PCR-based assays.⁵²

2. Does the Possibility of Contamination Undermine the Reliability of Polymerase Chain Reaction Testing?

Polymerase Chain Reaction (PCR) is a process of copying and amplifying small DNA segments.⁵³ It requires only a minute amount of DNA and can replicate highly degraded and contaminated samples of DNA.⁵⁴ In contrast to RFLP testing, which requires a sample about the size of a quarter, PCR analysis can be conducted on a sample of merely a few skin cells.⁵⁵ Polymerase Chain Reaction testing allows a small sample to be amplified to a degree that it can be tested using the Short Tandem Repeat method.

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. *Brim*, 779 So.2d. at 438.

50. *Campbell v. State*, 910 S.W.2d. 475, 478, n.6 (1995).

51. DNA Forensics, *supra* note 44.

52. David E. Burns, FUNDAMENTALS OF MOLECULAR DESIGN, available at http://books.google.com/books?id=gselc81U5W8C&pg=PA159&lpg=PA159&dq=RFLP-VNTR+testing&source=bl&ots=vuhfq9wpNG&sig=MDQGMTJjmgUqdubQ_6dv3dkS_oc&hl=en&ei=crpbTYKaNIjAtgfJ5pS9Cw&sa=X&oi=book_result&ct=result&resnum=5&ved=0CDkQ6AEwBA#v=onepage&q=RFLP-VNTR%20testing&f=false

53. DNA TYPING – PCR, <http://www.dna.gov/basics/analysis/pcr> (last visited March 19, 2011).

54. *Id.*

55. *Id.*

Polymerase Chain Reaction testing is a commonly accepted form of DNA analysis, yet it is not completely objective.⁵⁶ There is subjectivity in the selection of procedural testing conditions.⁵⁷ Additionally, because the PCR process will reproduce very small quantities of DNA, any and all of the DNA contained in the reference sample will be amplified.⁵⁸ One major problem with this method occurs when the DNA sample is contaminated.⁵⁹ If the evidence was improperly collected or stored, the results from PCR testing will be compromised.⁶⁰

3. Should STR Analysis Results Be Described in More Detail?

This process compares loci, specific regions (short tandem repeats) of DNA, between two DNA samples.⁶¹ There is variability to certain regions of the DNA which makes them useful for comparing between individuals.⁶² The Federal Bureau of Investigation (FBI) has selected 13 loci⁶³ for STR analysis as the standard for the CODIS database.⁶⁴ When DNA evidence is presented at trial, a match is declared if only one loci matches. Even though 12 other loci may not match, this will still be considered a match. This is problematic because at lower numbers of matching or corresponding sites, the test is less reliable to determine identity. The probability presented to explain this matching must account for the amount of matching and must be clearly described to the jury.

B. Scientific Problems

1. Inconsistency in the Application of a Non-Existent Standard

a. Low Copy Number DNA

Low-copy number (LCN) DNA may refer to “any situation where a small amount of DNA is present in a sample based on the sample type (e.g., an item that has been handled) and/or the estimated quantity of DNA determined using routine quantification assays.” Generally, samples containing less than 200–300 picograms of total DNA are considered to be LCN DNA by the majority of practitioners. Low copy number testing refers to “small amounts of recovered DNA and often the augmented amplification cycles used to increase the sensitivity of short tandem repeat (STR) polymerase chain reaction (PCR)

56. Aronson & Cole, *supra* note 42, at 612.

57. *Id.*

58. DNA TYPING – PCR, <http://www.dna.gov/basics/analysis/pcr>.

59. *Id.*

60. *Id.*

61. STR ANALYSIS, <http://www.dna.gov/basics/analysis/str> (last visited March 19, 2011).

62. *Id.*

63. See <http://www.genome.gov/glossary/index.cfm?id=116>

64. <http://www.dna.gov/basics/analysis/str> (the FBI CODIS 13 loci can be found at, <http://www.cstl.nist.gov/biotech/strbase/fbicore.htm>).

DNA-testing assays.”⁶⁵ Low copy number testing can also occur when the amount of DNA testing is below the required quantity suggested in the testing kit.⁶⁶ When a small amount of DNA is present, Polymerase Chain Reaction (PCR) is used to amplify the samples so that the quantity will be large enough to test.⁶⁷ After the amplification, the DNA can be tested against the reference sample.⁶⁸ Because of the amount of amplification required for the small sample size, the possibility for contamination is greatly increased.⁶⁹ Contamination can occur systematically through the water or PCR buffer used in the amplification procedure.⁷⁰ Contamination can also occur sporadically through PCR tube contamination.⁷¹ Some contamination problems can be remedied through the use of negative controls and clean facilities.⁷² However, due to lack of uniform oversight of crime labs, these procedures may not be present at all labs that employ this type of testing.⁷³ The American Society of Crime Laboratory Directors and Laboratory Accreditation Board offers voluntary accreditation.⁷⁴ Compounding this problem is the fact that the term low copy number testing is not uniformly defined.⁷⁵

b. Matching Alleles and Loci Minimums

When a law enforcement agency attempts to connect a DNA sample to a particular person, it does not compare entire DNA sequences, but rather the DNA at thirteen specific places, or “loci.” A person’s DNA characteristics at those thirteen loci make up their DNA “profile.” A “match” between an unknown sample and the profile of a particular person can occur at all thirteen or fewer loci. As more loci

65. Charlotte Word, What is LCN – Definitions and Answers, <http://www.promega.com/resources/articles/profiles-in-dna/2010/what-is-lcn-definitions-and-challenges/>

66. *United States v. Williams*, No. CR 05-920-RSWL, 2009 WL 1704986, at *3 (C.D. Cal. June 17, 2009).

67. *Roberts v. U.S.*, No. 03-CF-853, slip op. at 4 (D.C. Cir. 2007), (available at http://www.denverda.org/DNA_Documents/Roberts%20v.%20US.pdf, last visited 2/28/2010).

68. See generally MAAFS 2006 LCN WORKSHOP: INTRODUCTION TO LOW COPY NUMBER (LCN) DNA TESTING ISSUES, http://www.cstl.nist.gov/strbase/pub_pres/LCNintro_MAAFSworkshop_May2006.pdf.

69. See generally, *id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. Accreditation is available but more federal regulation and guidelines for procedures could be developed to standardize crime lab operations.

74. See generally, <http://www.ascdl-lab.org/>

75. David Kaye, Disagreement on What to Call Profiling with Really Small Samples Confuses Courts, <http://www.personal.psu.edu/dhk3/blogs/DoubleHelixLaw/2010/07/scientists-inability-to-agree-on-what-to-call-dna-profiling-with-really-small-samples-confuses-court.html>.

match, the probability increases that the DNA in the unknown sample comes from that person.⁷⁶

In the case of *Ex Parte Napper*, a table was presented at trial from an independent investigator at the Houston Police Department crime lab illustrating ten loci.⁷⁷ Samples were taken from both the victim and Napper.⁷⁸ The table illustrated the matching of both epithelial and sperm fragments.⁷⁹ Although there were 10 matching loci in the epithelial samples, there was only one allele unique to Napper that was not also a match in the victim.⁸⁰ In other words, the victim matched the swabbed samples in many of the places where Napper's sample matched the swabbed samples. Using this type of testing, it cannot be determined whether the swabbed sample originated from the victim or the suspect.⁸¹ This case is used to illustrate the use of loci in DNA analysis. It is not intended to show an error in the case, merely that matches may be linked to both the suspect and the victim. For this reason, it is imperative for attorneys to present evidence in an understandable way to jurors who may not comprehend the complexities of DNA analysis. Although the chart is not reproduced here, it is a good example of an illustration of the presentation of this analysis. There are methods for interpreting mixtures of samples that must be explained for the jury to have a true understanding of how the evidence should be interpreted.

c. False Positives

A "match" is the term used when sample results are consistent with testing of a specific individual.⁸² The more accurate description is that the individual is "included" as opposed to "excluded."⁸³ If there is no match between the reference sample and the suspect, then the samples are considered to have originated from different sources.⁸⁴ "It is possible for a falsely accused individual to be included as a source of a sample, particularly if the test system used only tests at one or a few loci."⁸⁵ It is important to note that most DNA testing will test at all thirteen loci. However, depending on the sample, only a few loci may give interpretable results. Obtaining results from only a few loci

76. *State v. Dwyer*, 985 A.2d 469, 474 (Me. 2009).

77. *Ex Parte Napper*, 322 S.W.3d 202, 208–09 (Tex. Crim. App. 2010).

78. *Id.* at 208.

79. *Id.* at 209.

80. *Id.*

81. *See id.* (The results of the sperm samples in the *Napper* case produced very different results than the results of the testing of the epithelial samples. While the samples matched the victim at ten loci, the samples also matched Napper at nine alleles across six loci.).

82. Possible Results From DNA Tests, <http://www.dna.gov/basics/analysis/types-of-results>.

83. *Id.*

84. Steps in DNA Processing, <http://www.dna.gov/basics/analysis/steps>.

85. Possible Results From DNA Tests, *supra* note 78.

should indicate a limitation in the results. This must be clearly communicated with the jury.

Problems with scientific evidence persist and DNA evidence provides new territory for old problems. In 86 DNA exoneration cases, forensic science errors were this cause.⁸⁶ These errors made up 63% of the errors in DNA exoneration, second only behind eyewitness misidentification.⁸⁷ The majority of these errors did not include DNA. The fact that scientific errors occur causing wrongful conviction unrelated to DNA with less reliable evidence shows that errors related to DNA must be closely scrutinized. An example of how DNA errors could be used is when crime labs employ a match window which would allow an expert witness to testify that there is a match even though there are obvious differences between the samples.⁸⁸ Lab technicians subjectively interpret results and can declare a match when there is not one, causing more wrongful convictions.⁸⁹ While most ethical examiners would not testify to these questionable matches there are others that would. It could be argued that this is equivalent to normal perjury or fraud that has nothing to do with scientific evidence. Yet these types of errors have occurred on numerous occasions leading to the investigation of crime labs across the country. Science and scientists are not infallible. When lives are at stake, justice requires the careful consideration of the possibility of error and harm when the evidence is used to prove the identity of the suspect.

These errors are willful in some instances. There have been numerous cases of misconduct, falsifying and planting evidence, false reports by forensic scientists at state crime labs.⁹⁰ Despite the fact that the DNA evidence itself may be very reliable, when human error is involved, the results of DNA testing are much less reliable.⁹¹ In some instances, falsification may be caused by cover up contamination errors based on poor lab work.⁹²

d. Crime Lab Errors

Fred Zain, former serologist with the Division of Public Safety Serology Division of the West Virginia State Police Crime Lab, willfully falsified evidence in criminal proceedings.⁹³ After an extensive study of the crime lab procedures and Zain's activities, it was found that:

"The acts of misconduct on the part of Zain included (1) overstating the strength of results; (2) overstating the frequency of genetic

86. Lieberman, *supra* note 20, at 30.

87. *Id.*

88. *Id.* at 45.

89. *Id.* (This could be caused by untrained, unethical, or even biased technicians).

90. *Id.* at 32.

91. *Id.* at 45.

92. *Id.* at 32.

93. *In re Investigation of W. Va. State Police Crime Lab., Serology Div.*, 438 S.E.2d 501, 503 (W. Va. 1993).

matches on individual pieces of evidence; (3) misreporting the frequency of genetic matches on multiple pieces of evidence; (4) reporting that multiple items had been tested, when only a single item had been tested; (5) reporting inconclusive results as conclusive; (6) repeatedly altering laboratory records; (7) grouping results to create the erroneous impression that genetic markers had been obtained from all samples tested; (8) failing to report conflicting results; (9) failing to conduct or to report conducting additional testing to resolve conflicting results; (10) implying a match with a suspect when testing supported only a match with the victim; and (11) reporting scientifically impossible or improbable results.”⁹⁴

The report found that Zain’s practices completely undermined the validity and reliability of any forensic work he performed or reported.⁹⁵ Zain’s testimony was used to convict innocent people.⁹⁶ Zain made positive identifications in 133 cases.⁹⁷ In the case of *State v. Woodall*, Zain testified that the assailant’s blood type was identical to Mr. Woodall and that his blood traits would only occur in 6 of every 10,000 men in West Virginia.⁹⁸ Woodall was convicted and the conviction was affirmed on appeal yet DNA testing conclusively established that he could not be the perpetrator.⁹⁹

This type of fabrication can also be seen in the Houston Police Department Crime Lab.¹⁰⁰ The Houston crime lab closed in 2002 after a finding of over 43 cases where employees regularly fabricated evidence and lied in court about their test results.¹⁰¹ Other crime labs in North Carolina, Washington, Pennsylvania, Nevada and California and even the FBI have been investigated about crime lab misconduct.¹⁰²

e. Crime Lab Employees

When DNA evidence is presented at trial, the person testifying is not always the person who conducted the test.¹⁰³ This is true whether the scientific evidence used at trial is DNA or other evidence. Laboratory employees are permitted to testify regarding scientific analyses conducted by other laboratory employees.¹⁰⁴ For example, the super-

94. *Id.* at 503.

95. *Id.* at 504.

96. *See generally id.* at 509.

97. *See e.g., id.* at 509.

98. *State v. Woodall*, 385 S.E.2d. 253, 260 (1989).

99. *See e.g., In re Investigation of W. Va. State Police Crime Lab., Serology Div.*, 438 S.E.2d at 509.

100. *See Aronson & Cole, supra* note 42, at 624–25.

101. *Id.*

102. *Id.* at 625.

103. *See Brooke Edenfield, Who Ya Gonna Call? Confusion Reigns After the Supreme Court’s Failure to Define Testimonial and Analyst in Melendez-Diaz v. Massachusetts*, 59 U. KAN. L. REV. 137, 149–50 (2010).

104. *Id.* (referring to *Melendez-Diaz v. Massachusetts*, 129 S.Ct. 2527 (2009)).

visor in *Melendez-Dias v. Massachusetts*, was unfamiliar with the exact testing procedures or if the procedure encountered difficulty when presenting the evidence.¹⁰⁵ The notes used by the supervisor were also not admitted into evidence.¹⁰⁶

Existing evidentiary practices are used to guide the use of DNA evidence. It is troublesome that the person who conducted the test may not be the individual testifying about it. Because of the subjective nature of some DNA analysis interpretation, this practice can lead to additional problems when the evidence being interpreted is DNA.

C. Juror (Mis)Understanding of DNA Evidence

1. The CSI Effect and the Reverse CSI Effect

There have been many studies conducted on the uses of DNA evidence at trial at its effects on jurors.¹⁰⁷ Psychologists from the University of Nevada and other institutions conducted three studies on several hundred graduate students and representative jurors on (a) perceptions of scientific evidence, (b) the influence of DNA evidence as compared to other types of evidence and (c) the limitations of DNA testimony.¹⁰⁸ The study concluded that jurors give unfair weight to DNA evidence presented at trial.¹⁰⁹ In the study on jurors and DNA evidence, jurors found DNA evidence to be 95% accurate and 94% persuasive.¹¹⁰ Other studies have concluded that jurors do not give unfair weight to DNA evidence. Because there is a possibility of overweight of this evidence, courts should err on the side of caution and closely scrutinize errors related to the use of DNA evidence for suspect identification. Even if jurors do not have an understanding of the interpretive aspect of DNA analysis and overweigh the evidence, defense attorneys can address this issue. The responsibility for juror understanding falls squarely on the shoulders of defense attorneys.

The “CSI Effect” is the term coined to describe the effect that television shows such as *Crime Scene Investigation* have on juror opinions.¹¹¹ The television show CSI was the leading watched scripted television series from 2002–2007.¹¹² Jurors now expect that DNA evidence will be presented and fault the prosecutors for not building a

105. *Id.* at 150.

106. *Id.*

107. Lieberman, *supra* note 20, at 30.

108. *See generally, Id.* at 27.

109. *Id.* at 28.

110. *Id.* at 52 (Undergraduate students also found DNA evidence to be highly accurate and persuasive – M -93.7% accurate).

111. Shelton, *supra*, note 19.

112. Jessica Gabel, *Forensiphilia: Is Public Fascination with Forensic Science a Love Affair or a Fatal Attraction?*, 36 N. ENG. J. ON CRIM. & CIV. CONFINEMENT 233, 238 (2010).

strong case where there is no DNA evidence presented.¹¹³ Although the jurors expect to see this evidence, the television show does not provide jurors a better understanding of the use of DNA in the courtroom. Therefore jurors expect to see DNA evidence presented, but they do not necessarily understand it fully.¹¹⁴ The CSI Effect has been referred to in 17 federal and state cases.¹¹⁵ The CSI Effect is being taken seriously by some attorneys and has even been incorporated into voir dire.¹¹⁶ To be sure that the potential jurors could relinquish their scientific evidence expectations the voir dire question in *Kelly v. State* was asked by the court:

“Now, I’m going to assume, having done this a few times, that many of you watch way too much television, including those so-called realistic crime shows like *CSI: New York* and *CSI: Miami* and *CSI: Glen Burnie* and *Law and Order* and the rest of it. And I trust that you understand that these crime shows are fiction and fantasy and for your entertainment. And for dramatic effect, they purport to rely upon “scientific evidence” to convict guilty persons. While this is certainly acceptable as entertainment, you must not allow your entertainment to interfere with your duties as a juror. Therefore, if you are currently of the opinion that you cannot convict a Defendant without ‘scientific evidence,’ regardless of all of the other evidence in the case and regardless of the instructions that I give you as to the law of the case, please stand.”¹¹⁷

2. Confusing Expert Testimony and Statistical DNA Evidence

The adversarial nature of court proceedings enhances the problems when seemingly harmless inferential leaps are made presenting low probability or zero probability.¹¹⁸ This suppression of uncertainty could lead to serious errors by the jury.¹¹⁹ The formulas used to determine statistical probability of a match produce a result that is difficult for a layperson to understand.¹²⁰ The statistical generic product

113. *Id.* at 240–41.

114. *See generally, id.* at 242 (suggesting that jurors expect to see scientific evidence presented. The article does not suggest that the jurors understand how the evidence is being used merely whether it is presented or not).

115. *See generally, Kelly v. State*, 6 A.3d. 396, 412 (Md. Ct. Spec. App. 2010), *Coleman v. State*, 2010 Ark. App. 497, 501 (2010), *U.S. v. Gentles*, 619 F.3d. 75, 82 (1st 2010), *Charles v. State*, 997 A.2d. 154, 157 (Md. 2010), *Com. v. Seng*, 924 N.E.2d. 285, 296–97 (Mass. 2010), *State v. Jones*, 33 So.3d. 306, 327 (La. Ct. App. 5th 2010), and *State v. Cooke*, 914 A.2d. 1078, 1082–88 (Del. Super. Ct. 2007) (this list represents a sample of the cases where the CSI Effect was mentioned. In the majority of these cases, the CSI Effect term was used during voir dire).

116. *See generally, Kelly*, 6 A.3d. at 412.

117. *Id.* at 412.

118. Michael Saks, *Individualization Claims in Forensic Science Still Unwarranted*, 75 BROOK. L. REV. 1187, 1205 (2010).

119. *Id.*

120. *See, e.g., Brim v. State*, 77 So. 2d 427, 445 (2000).

formula is used to convey the odds of the suspect's sample matching the reference sample.¹²¹ Although it may be significant to a juror that there is a high statistical odds ratio, for example, one out of 2.7 billion, this statistic does not necessarily mean a positive identification to a scientist.¹²² Additionally, because the conclusion derived from the product formula is the result of using multiple probes, this also multiplies the possibility of error.¹²³ There are some procedures which address the issue that the product formula overstates the level of scientific certainty of DNA analysis.¹²⁴ The formulas used to calculate probabilities change as additional research is done and the statistical conclusions drawn from analyzing a sample of DNA may differ depending on the testing method used.¹²⁵ The statistical evidence presented from DNA analysis is an educated estimate based on limited samples, which is subject to uncertainty and has a range of error.¹²⁶ The use of statistics to describe conclusions of DNA analysis is problematic because it can lead to false positive and false negative findings.¹²⁷

When considering juror understanding of DNA evidence, statistical evidence and non-statistical approaches have been used to present the evidence to jurors. While the statistical presentation of the results of DNA analysis may be confusing, not using statistics may raise different concerns. In *Commonwealth v. Mattei*, no statistical evidence was presented regarding the DNA evidence.¹²⁸ The expert testified that the defendant could not be excluded by the DNA evidence.¹²⁹ The court found that evidence that the defendant could not be excluded based on DNA evidence would be more prejudicial than probative and would confuse and mislead the jury.¹³⁰ The expert witness presented the test results as follows:

"The test results fell into two groups: tests of DNA taken from a sweatshirt showed a 'match' with DNA samples from the defendant and the victim; other tests did not result in 'matches' but '[could not]

121. See, *id.* at 443.

122. *Id.* at 445 (citing *Interpreting DNA Evidence: Statistical Genetics for DNA Scientists*, suggesting that this ratio actually represents the probability of a false positive).

123. *E.g. id.*, at 444 (citing Ryan McDonald, *Juries and Crime Labs: Correcting the Weak Links in the DNA Chain*, 24 AM. J.L. & MED. 345, 355 (1998); Jonathan J. Koehler, *On Conveying the Probative Value of DNA Evidence: Frequencies, Likelihood Ratios, and Error Rates*, 67 U. COLO. L. REV. 859 (1996)).

124. *Id.* at 446, (procedures include—the counting method, ceiling principles, and modified ceiling principles).

125. *Id.* (the recommended method was changed in 1996).

126. *Id.*

127. Jonathan Koehler, *Why DNA Likelihood Ratios Should Account for Error (Even When a National Research Council Report Says They Should Not)*, 37 JURIMETRICS J. 425, 427 (1997).

128. See *Commonwealth v. Mattei*, 920 N.E.2d. 845 (2010).

129. *Id.* at 848.

130. *Id.*

exclude' the defendant or the victim as a possible contributor to the sample. There were no 'matches' between the defendant and DNA from any samples taken from inside the victim's apartment, and there were no matches between the victim and DNA from samples taken from the defendant's clothes when apprehended."

Additionally, evidence was presented that, "certain profiles were "not excluded" meant that "the numbers that are present in those profiles are also present in the [sample profile] being compared." The nonexclusion results here were not "matches," she explained, because either not enough DNA was available to test all thirteen allele sites or it was not possible to distinguish the major from the minor profile at one allele site.¹³¹ The expert's testimony was confusing and at times inconsistent.¹³² During redirect, the expert "mistakenly" testified about DNA results from the doorknob when she was asked about the DNA found in the sweatpants.¹³³ In yet another instance of the expert's testimony, she gives this description of a finding of nonexclusion vs. inconclusive. The record indicates that,

"The expert distinguished nonexclusion results from 'inconclusive' results. For example, while the victim 'could not be excluded' as a potential source of the major DNA profile found on the defendant's sweatpants, there was not enough DNA from the minor profile contributor in that sample to be able to compare that profile to the defendant's, or anyone else's, DNA profile. Thus, 'the minor profile in the DNA mixture yielded *inconclusive* results for comparison with' the defendant (emphasis added); in other words, according to the expert, as to the minor profile in the sample, 'there has been no conclusion made.'¹³⁴

Consistent with other cases where DNA evidence is misused, the prosecutor then used this evidence as a part of the theory of the case.¹³⁵ The prosecutor referred to the nonexclusion DNA evidence in the closing argument and referred to this evidence as "very important in the case."¹³⁶ The prosecutor encouraged the jury to draw inferences about the non exclusion DNA evidence which the court found to "encourage the jury to act as their own experts."¹³⁷ Although there was other evidence presented at the trial that the defendant was seen with the sweatshirt earlier in the day and without the sweatshirt later in the day.¹³⁸ The court held that it was not shown that the jury was not substantially swayed by the non exclusion DNA evidence into discounting the possibility that someone other than the

131. *Id.* at 853.

132. *Id.*

133. *Id.*

134. *Id.* at 854 n.23.

135. *See generally, id.* at 858 n.32.

136. *Id.*

137. *Id.* at 858-59.

138. *Id.*

defendant committed the crime.¹³⁹ The court ordered a new trial based on this finding.¹⁴⁰

D. *The Lawyers Role*

1. Prosecutor's Fallacy

Expert testimony is used to present DNA evidence, but prosecutors and defense attorneys must also have a general understanding of how DNA evidence is used. According to the Law School Admissions Council, the number of law school students with math or science backgrounds is decreasing.¹⁴¹ Prosecutors seek ways of presenting DNA evidence that both they and the jury can understand.

The prosecutor's fallacy happens when prosecutors present DNA evidence that confuses source probability with match probability.¹⁴² In the Ninth Circuit case of *Brown v. Farwell*, the expert gave misleading and inaccurate testimony regarding DNA evidence at the trial.¹⁴³ The expert presented source probability evidence that there was a 99.99967 chance of that the DNA found on the victim matched the defendant.¹⁴⁴ The expert also testified that the likelihood of a match was 1 in 3,000,000 people randomly selected in the population would also match the sample, which represents the actual random match probability.¹⁴⁵ The source probability was an incorrect extrapolation of the random match probability.¹⁴⁶ The random match probability evidence does not prove that the defendant is an actual match with the sample; it only shows the likelihood of a match.¹⁴⁷ This type of random matching was even more problematic in this case because the defendant had several brothers.¹⁴⁸ The expert inaccurately underestimated the likelihood that one of the defendant's brothers could be the perpetrator.¹⁴⁹

2. Defense Attorneys and Effective Assistance

The *Brown* case also demonstrates the role that defense attorneys play in the problems with DNA evidence.¹⁵⁰ The expert gave misleading and inaccurate testimony regarding DNA evidence at the trial.¹⁵¹

139. *Id.* at 859.

140. *Id.* at 854.

141. Law School Admissions Council Inc., *National Statistical Report: 2003-04 Through 2007-08* at A-6 to A8 (2009).

142. *Brown v. Farwell*, 525 F.3d. 787, 796 (2008).

143. *Id.* at 795.

144. *Id.*

145. *Id.*

146. *Id.*

147. *Id.*

148. *Id.* at 796.

149. *Id.*

150. *Id.* at 792.

151. *Id.*

The defendant's attorney failed to diligently defend against the interpretation of the DNA evidence presented.¹⁵² The district court found that this failure represented ineffective assistance of counsel.¹⁵³ In this case, the court found that absent the later discredited DNA evidence, there was insufficient evidence to sustain a conviction.¹⁵⁴

In response to issues regarding juror understanding of DNA as scientific evidence, one criticism involves defense attorneys. It is the responsibility of the defense attorney to present the evidence and to highlight any problems with the prosecutor's evidence. Improper presentation or interpretation of DNA evidence can—and should—be refuted and highlighted by the defense attorneys. Even if prosecutors present DNA evidence in a way that is more favorable to the state's case, the defense attorney has an opportunity to have discovery, cross-examination of witnesses and the ability to present an alternate theory of the case. Excluding interpretation issues of the scientific evidence, the defense attorneys have a tremendous responsibility to make sure that the jury understands how DNA evidence can be used.¹⁵⁵ The defense attorney must clarify for the jury exactly what the evidence shows and what it does not show. It is imperative the defense attorneys understand how DNA should be presented and can identify and refute the prosecutor's fallacy. Defendants do not always have their own DNA testing.¹⁵⁶ They are forced to rely on the prosecutors testing of the samples at the local crime labs. Many times poor criminal defendants are represented by public defenders. These defendants often do not have money to pay for DNA testing. These issues must be address to ensure that criminal defendants receive adequate representation.

III. THE HARMLESS ERROR DOCTRINE

A. *The Federal Rule*

The harmless error doctrine applies to errors involving prosecutors and others.¹⁵⁷ All 50 states have harmless error rules.¹⁵⁸ There is a federal statute which includes harmless error language and states that judgments shall not be reversed for errors or defects that do not affect the substantial rights of the parties.¹⁵⁹ "The harmless-error doctrine

152. *Id.*

153. *Id.*

154. *Id.*

155. Clarke, *supra* note 27.

156. This can be caused by the small amount of the reference sample, defense attorney decision or lack of funding for testing.

157. Errors involving prosecutors, police, crime labs, witnesses and evidence may receive harmless error review. While some errors involve prosecutorial misconduct there are many errors that are subject to harmless error review that do not involve this type of misconduct.

158. *Chapman*, 386 U.S. at 22.

159. 28 U.S.C.A. § 2111 (2006)

recognizes the principle that the central purpose of a criminal trial is to decide the factual question of the defendant's guilt or innocence and promotes public respect for the criminal process by focusing on the underlying fairness of the trial rather than on the virtually inevitable presence of immaterial error."¹⁶⁰ With this in mind, errors deemed to be harmless do not affect the case in a way that is recognized as justifying correction. Errors receiving harmless error review are not always merely a misspelled name or a tardy arrival for court. It is not suggested that there are no errors which should be considered harmless. The errors addressed by this Article are those that are caused by intentional or willful action, neglect or inaction and sometimes even have a malicious intent—errors caused by prosecutorial misconduct. Misconduct involving DNA evidence which will be later used to identify the defendant and prove guilt are the errors this article suggests should be closely monitored.

When courts apply the doctrine of harmless error, they first determine whether the facts of the case present an error of state law or an error that contravenes a constitutional provision. This determination is essential because there are separate standards of review for errors of state law and those which arise under the U.S. Constitution. In *Kotteakos v. United States*, the Supreme Court established the following standard for harmless error review of state law errors: "If, when all is said and done, a conviction is sure that an error did not influence the jury, or had but very slight effect, a verdict and a judgment should stand, except where the departure is from a constitutional norm or a specific command of Congress."¹⁶¹ Furthermore, in *Kotteakos*, the court provided that "if one cannot say, with fair assurance, after pondering all that happened without stripping erroneous action from the whole, that a judgment was not substantially swayed by error, it is impossible to conclude that substantial rights were not affected." With respect to issues involving federal constitutional law, the court of *Chapman v. California* established the following standard for review: "[B]efore a federal constitutional error can be held harmless, the court must be able to declare a belief that it was harmless beyond a reasonable doubt."¹⁶² This ruling nullified any previous beliefs that all trial errors which violate the Constitution shall be reversed.¹⁶³

The harmless error doctrine is multifaceted and is generally applied to errors of state law and constitutional provisions. In *Chapman v. California*, the U.S. Supreme Court established that a constitutional error is not automatically harmful.¹⁶⁴ The court in *Chapman* acknowledged that the illegal introduction of highly persuasive evidence can

160. *Del. v. Van Arsdall*, 475 US 673, 681 (1986).

161. *Kotteakos v. United States*, 328 U.S. 750, 774 (1946).

162. *Chapman*, 386 U.S. at 24.

163. *Id.*

164. *Id.* at 22.

produce mischievous results when the question of guilt or innocence is close.¹⁶⁵ If other evidence of guilt exists which would cause the defendant to still be found guilty, the error is harmless. The Supreme Court stated in *Fayh v. State of Connecticut*, that, “the question is whether there is a reasonable possibility that the evidence complained of might have contributed to the conviction.”¹⁶⁶ By contrast, when the error is a non-constitutional, the defendant would have the burden of demonstrating its prejudicial effect.¹⁶⁷ The errors referred to in this article are non-constitutional errors.

B. State Approaches

The harmless error doctrine is primarily applied to trial errors related to state law.¹⁶⁸ The defendant has the burden of showing that the non constitutional trial errors affected the results of the trial or resulted in prejudice to the judicial process.¹⁶⁹ In *State v. Williams*, expert testimony was presented at trial that more of the victim’s DNA was found under the defendant’s fingernails than the defendant’s DNA and that this suggested more than casual contact.¹⁷⁰ During questioning of the State’s expert outside the hearing of the jury, the expert was asked if he was aware of any studies about whether the quantity of DNA found in a testing sample was significant and he indicated that he was not.¹⁷¹ The State’s expert Agent Johnson further indicated that he did not know what was the significance of finding more of the victim’s DNA on the defendant or how it got there. However, when asked in the presence of the jury about the significance of finding more of the victim’s DNA under the defendant’s fingernails, Agent Johnson indicated that there was significance to this finding and suggested that this evidence proved there was more than casual contact.¹⁷² At trial the defense counsel asked the expert if it was true that he was unaware of “a single study on earth done by a single scientist anywhere, that gives any significance to major or minor other than that just the ratio is higher” and that he personally “did not know what the ratio means,” the expert Agent Johnson replied “exactly.”¹⁷³ Later in the trial, the prosecutor used the evidence presented by the expert to suggest that the presence of more of the victim’s DNA under

165. *Id.*

166. *Fayh v. Conn.*, 375 U.S. 85, 86 (1963).

167. *People v. Gamache*, 227 P.3d 342, 387 (Cal. 2010).

168. *See generally*, *State v. Williams*, no. MX005-00836-CCA-R3-CD, 2006 WL 3431920, *20 (Tenn. Crim. App. Nov. 29, 2006).

169. *Williams*, 2006 WL 3431920, *20.

170. *Id.* at *18.

171. *Id.*

172. *Id.*

173. *Id.* (The testimony that there was significance contradicted his jury out statement that he was unaware of what this evidence proved).

the fingernails of the defendant supported the State's theory that the defendant was guilty.¹⁷⁴

The effect of the application of the harmless error doctrine is that there is a presumption of the defendant's guilt and if there is enough evidence in the record to support the finding of guilt after excluding the error, then the error is harmless, no matter what it is.¹⁷⁵ Errors may be deemed harmless because there is other evidence to support guilt; however in cases of wrongful conviction the errors may give support to other less reliable evidence making the other evidence seem more reliable. The harmless error doctrine provides a way to excuse prosecutorial misconduct. "Once DNA shows that the defendant is in fact innocent, constitutional error does not look so harmless, especially in cases where the police and prosecutors engaged in egregious misconduct such as destroying evidence, coercing witnesses, and fabricating and suppressing evidence of innocence."¹⁷⁶ Agent Johnson was certified as an expert in the field of forensic science and DNA evidence.¹⁷⁷ In assigning error to the testimony of the expert and the use of this testimony by the prosecutor, the court stated that: "Agent Johnson admitted that his conclusion that the evidence suggested more than casual contact was not based on any scientific study or even his opinion as an expert in the field of DNA analysis. Rather, he stated that he really did not know what the ratio meant or even if it had any significance at all. As such, this testimony did not substantially assist the trier of fact to understand the evidence or to determine a fact at issue as required of expert testimony."¹⁷⁸ The court suggested that "this testimony served only to further confuse the jury on the already difficult-to-understand subject of DNA forensic evidence."¹⁷⁹ There was no purpose to present an expert in this case regarding the DNA evidence because the expert was unable to draw any reliable inference or testify about any evidence requiring specialized knowledge for the jury to understand it.¹⁸⁰ The court held that the admission of the DNA expert's speculative testimony was an error.¹⁸¹ However, the court found that this error should be considered harmless.¹⁸² Although the error regarding the expert testimony was deemed harmless, when considered with the other errors in the case, the court ultimately reversed and remanded the convictions for a new trial.¹⁸³

174. *Id.*

175. *Garrett*, *supra* note 6 at 59.

176. *Garrett*, *supra* note 6 at 53 n.83.

177. *Williams* *supra* note 168, at *19.

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*

182. *Id.* at *20.

183. *Id.* at *30.

When considering the term harmless, can any purposeful error truly be harmless when the outcome of the case may conclude in life or death? Merriam-Webster defines harmless “as free from harm, liability or loss; lacking capacity or intent to injure; innocuous.”¹⁸⁴ This lay definition suggests that there is no intent to harm, and no liability aspect of the term. The judicial interpretation of the term “harmless” in the harmless error doctrine suggests that liability/guilt can be found in other evidence excluding that which was deemed to be harmless.¹⁸⁵ Yet, these harmless errors do often contribute to conviction. How can a backward-looking review of the case be determinative on whether the “substantial rights” of the defendant were affected? Was there enough other evidence to convict even if the evidence tainted by error was excluded? Can the court truly answer these questions? When the error is caused by prosecutorial misconduct, intent to injure or convict may very well be the cause of the error which is later considered harmless. Intent and liability seem to undermine the term “harmless” in its most basic sense. While these philosophical arguments can be made, the harmless error doctrine has been followed and is codified.¹⁸⁶

IV. PROSECUTORIAL MISCONDUCT AND WRONGFUL CONVICTION

A. *General Concerns about Prosecutorial Misconduct*

The use of these harmless error rules combined with the discretion of prosecutors creates a challenge. “It is difficult for a prosecutor to fulfill simultaneous roles as a zealous advocate and as a neutral administrator of justice.”¹⁸⁷ Many prosecutors are neutral actors pursuing justice. This Article by no means suggests that all prosecutors are involved in misconduct or are engaged in the actions described here. Limiting the application of the harmless error doctrine by creating this narrow exception regarding prosecutorial misconduct and DNA evidence used for identification only targets the small percentage of prosecutors both purposefully and negligently involved in this type of misconduct. Enacting rules and policies which help to prevent wrongful convictions strengthen public trust in the judicial system.¹⁸⁸

184. Merriam-Webster online, Harmless – Definition and More from the Free Merriam-Webster Dictionary, <http://www.merriam-webster.com/dictionary/harmless> (last visited March 8, 2011).

185. Any error, defect, irregularity or variance which does not affect substantial rights shall be disregarded.

186. See FED. R. CRIM. P. 52(a) *supra*, note 5.

187. See e.g., Douglas Ginsburg & Hyland Hunt, *The Prosecutor and Post-Conviction Claims of Innocence: DNA and Beyond*, 7 OHIO ST. J. CRIM. LAW 771, 776 (2010).

188. John Terzano, *Another Exoneration Demonstrates the Need for Criminal Justice Reform*, THE JUSTICE PROJECT, Mar. 4, 2010, available at <http://www.thejusticeproject.org/blog/another-exoneration-demonstrates-the-need-for-criminal-justice-reform/>.

Prosecutors have enormous power and decision-making ability in terms of who to prosecute, what to prosecute and what evidence is presented.¹⁸⁹ When misconduct occurs, prosecutors undermine the essence of their role in the adversarial process by using improper methods such as the use of false testimony, introducing inadmissible evidence at trial and withholding favorable evidence from the defense.¹⁹⁰ Prosecutorial misconduct can occur in both active and passive ways.¹⁹¹ The prosecutor may choose to ignore the lack of corroborating evidence to an accomplice's testimony or fail to seek other contradictory evidence.¹⁹² The prosecutor may choose not to introduce or explore evidence which supports innocence. The prosecutor may over value evidence that supports guilt.¹⁹³ Many times these judgment calls made by the prosecutor about what theories to advance and what evidence to present do not include any negative intention.¹⁹⁴ But because of societal influences and the difficulty of balancing the prosecutor's responsibilities, errors and misconduct may occur.¹⁹⁵ It is the prosecutor's duty to seek justice and to avoid prosecuting innocent people.¹⁹⁶ Prosecutors have an ethical obligation to seek justice.¹⁹⁷ Prosecutors may have stronger incentives to obtain a guilty verdict than a verdict of not guilty.¹⁹⁸

Issues of bias and racism often lurk in the background of prosecutorial misconduct cases.¹⁹⁹ The majority of American prosecu-

189. Samy Nowack, *Symposium Statutory Rape Realities: Scholarship and Practice Article: A Community Prosecution Approach to Statutory Rape: Wisconsin's Pilot Policy Project*, 50 DEPAUL L. REV. 865, 874 (2001).

190. Gier, *supra* note 169, at 194-5.

191. Prosecutors can actively withhold evidence or coerce testimony from witnesses and informants. They can also passively choose not to present certain evidence or continue to prosecute someone where there are strong doubts about guilt. *See generally*, Josh Bowers, *Legal Guilt, Normative Innocence, and The Equitable Decision Not to Prosecute*, 110 COLUM. L. REV. 1655 (2010) (discussing prosecutorial discretion and when prosecutors choose not to prosecute).

192. Fred C. Zacharias, Bruce A. Green, *The Duty to Avoid Wrongful Convictions: A Thought Experiment in the Regulation of Prosecutors*, 89 B.U.L. REV. 1, 17 (2009).

193. Ginsburg & Hunt, *supra*, note 60 at 777.

194. *See generally*, Peter Henning, *Prosecutorial Misconduct and Constitutional Remedies*, 77 WASH. U. L. Q. 713, 728 (1999)

195. *Id.*

196. ABA Death Penalty Representation Project: Report to the House of Delegates, OFFICE OF JUSTICE PROGRAMS, http://www.ojp.usdoj.gov/BJA/topics/Plenary5/Workshops/Workshop5C/B_Scheck-AmericanBarAssoc105B.pdf (last visited November 20, 2010).

197. Tennis, *supra* note 5 at 177.

198. Ginsburg & Hunt, *supra* note 60 at 777 (stating that prosecutors face political challenges to be tough on crime).

199. *See*, Daniel S. Medwed, *Looking Foreword: Wrongful Convictions and Systemic Reform*, 42 AM. CRIM. L. REV. 1117, 1117 (2005) (describing factors related to wrongful conviction including prosecutorial misconduct and racial bias).

tors are white,²⁰⁰ while the majority of those convicted of the most serious crimes are not.²⁰¹ Prosecutorial misconduct may have the greatest effect on wrongfully convicted African-American men.²⁰² The other class of victims of prosecutorial misconduct is the poor.²⁰³ A recent example of racial bias and different treatment can be seen by examining the Jena 6 cases.²⁰⁴ The Jena 6 is a group of African-American high school students that were charged with attempted murder after fighting with a white student.²⁰⁵ The problem began when a group of African-American students sat under the "White Tree" that was known in the community for only white students.²⁰⁶ Nooses were found hanging from the tree the next day.²⁰⁷ The prosecutor involved in the case classified the nooses as a prank rather than a hate crime and refused to charge any students with a criminal offense.²⁰⁸ In the days following this incident, there were several small fights involving African-American students from the high school and white students.²⁰⁹ In each of these situations, the white individuals involved were charged with misdemeanors while the African-American students were charged with attempted second-degree murder and conspiracy to commit second-degree murder.²¹⁰ In this situation, there was no reason other than race that the charges were different. It is the prosecutor's job to act in an impartial way, which does not always happen. In this case, the prosecutor, J. Reed Walters, was recused upon a finding that "the District Attorney stated his intent to charge Bailey²¹¹ and his co-defendants with the harshest crimes, and to seek the maximum penalty allowed by law, while characterizing efforts to intimidate African-Americans as a 'prank' and bringing only misdemeanor charges against the Whites who assaulted Bailey."²¹² The prosecutor told the group of high school students in a school assembly regarding

200. American Bar Association, *Lawyer Demographics*, http://www.new.abanet.org/marketresearch/PublicDocuments/Lawyer_Demographics.pdf (last visited Nov. 5, 2010).

201. Race and Prison, <http://drugwarfacts.org/cms/?q=node/64> (last visited Oct. 6, 2010).

202. See, JIM DWYER, *ACTUAL INNOCENCE: WHEN JUSTICE GOES WRONG AND HOW TO MAKE IT RIGHT* 318 (2003).

203. Unell, Ephraim, *A Right Not to be Framed: Preserving Civil Liability in the Face of Absolute Immunity*, 23 GEO. J. LEGAL ETHICS, 955, 957, (2010).

204. Angela M. Kupenda, et al., *Donning Judicial Robes, Cloaking Racial Views: Judicial Speech on Matters Involving Race, Especially on the Jena Six*, 36 S.U. L. REV. 207, 215 (2008).

205. Richard G. Jones, *In Louisiana, a Tree, a Fight and a Question of Justice*, N.Y. TIMES, Sept. 19, 2007, at A14.

206. *Id.*

207. *Louisiana v. Baily*, 2007-1922, p. 2 (La. 12/7/07); 969 So. 2d 610, 610.

208. *Id.* at 2, 969 So. 2d at 611.

209. *Id.* at 2, 969 So. 2d at 611.

210. *Id.* at 3, 969 So. 2d at 611.

211. *Baily*, 2007-1922, p. 6; 969 So. 2d at 613. Bailey was one of the students known as the "Jena 6."

212. *Id.*

the Jena 6²¹³ incident that “with one stroke of this pen, I can make your life disappear.”²¹⁴ This language demonstrates the perspective of some prosecutors.

The potential for the prosecutor’s judgment to be compromised is enormous.²¹⁵ Race is also used to present DNA evidence which may underscore concerns about the impact of prejudice on juror determinations.²¹⁶ The rising number of wrongful convictions raises questions about the criminal justice system.²¹⁷ The current system addressing prosecutorial misconduct issues as harmless errors must be revisited in light of new technology, specifically, DNA evidence. While errors with much higher inaccuracy²¹⁸ are considered harmless, it would be even more detrimental to justice, to allow all instances prosecutorial misconduct, to be considered harmless when DNA evidence is involved.

Prosecutorial misconduct has been blamed for the wrongful conviction of many innocent people.²¹⁹ The wrongfully convicted may spend years in jail for crimes they did not commit.²²⁰ This misconduct may have a variety of causes including the inadequacy of rules and process protecting against misconduct.²²¹ It is extremely difficult to overturn a conviction.²²² One must overcome the notions that jury verdicts are sound and principles of finality and deference should prevail without overwhelming evidence of innocence.²²³ Prosecutors and investigators are reluctant to admit finding an incorrect verdict or any possibility of wrongdoing. The mantra of innocent until proven guilty, in practice appears more like guilty per se.²²⁴

There are many different types of prosecutorial misconduct. Each type of misconduct described has been shown to lead to wrongful conviction.²²⁵ This section of the article will review selected types of prosecutorial misconduct along with cases of wrongful conviction and

213. Group of students seemingly singled out and discriminated against.

214. E.g., Angela J. Davis, *Lawyering at the Edge: Unpopular Client, Difficult Case, Zealous Advocate The Legal Profession’s Failure to Discipline Unethical Prosecutors*, 36 HOFSTRA L. REV. 275, 307 (2007).

215. See generally, *id.*

216. Jonathan Kahn, *Race, Genes and Justice: A Call to Reform the Presentation of Forensic DNA Evidence in Criminal Trials*, 74 BROOK. L. REV. 325, 373 (2008).

217. Garrett, *supra* note 6 at 37.

218. Eyewitness testimony is frequently considered inaccurate and has been constantly used to convict.

219. Johns, *supra* note 4.

220. Davis, *supra* note 213, at 299.

221. *Id.* at 280.

222. See *United States v. Foster*, 507 F.3d 233 (4th Cir. 2007).

223. Garrett, *supra* note 6 at 36.

224. Based on the fact that these errors are overlooked, there seems to be a presumption of guilt.

225. Every case of wrongful conviction does not involve prosecutorial misconduct. But each of the described types of prosecutorial misconduct has been identified in a wrongful conviction case.

exoneration which included these errors. The harmless error doctrine may be used on its own or embedded in requests for new trial based on new evidence or appellate claims of actual innocence.²²⁶

Unreliable eye witness testimony, withholding exculpatory evidence, misinterpretation and misuse of scientific evidence and forced confessions are often the result of prosecutorial misconduct.²²⁷ Additionally, courtroom misconduct and mischaracterizing and mishandling evidence are also common types of prosecutorial misconduct.²²⁸ The issue of forced confessions will not be discussed because of the difficulty in proving the coercion.²²⁹ Often, coerced confessions are the result of police action rather than actions of the prosecutor.²³⁰ Background information on how long the person was held before the confession, deals made, and the possibility of duress is unavailable.²³¹ Other types of misconduct are more easily traceable and can be shown with evidence.²³² To better elucidate the issues of prosecutorial misconduct, cases representing each type of misconduct are described.

B. Prosecutor Facilitated Eyewitness Misidentification

Eye witness testimony is often the strongest evidence determining guilt.²³³ Jurors tend to believe the testimony of victims. Witnesses must recall horrifying events long after the events have occurred.²³⁴ There are no standard rules for what makes a “good” eye witness.²³⁵ Even witnesses that are 100% sure of their identification have been shown to be wrong. Witnesses may have seen an incident from far away at night. They are then asked to identify one individual based on this limited information. The witness’s memory can easily be distorted by the circumstances.²³⁶ Depending on the type of lineup that was used in the witness’s initial identification, the procedure may have been suggestive. In some cases, police and prosecutors encourage the witnesses to identify the defendant on trial.²³⁷ Witnesses are told that

226. *Washington v. Recuenco*, 548 U.S. 212, 221 (2006).

227. *Scott v. State*, 677 S.E.2d 755, 758 (Ga. Ct. App. 2009) (quoting *Pringle v. State*, 645 S.E.2d 843 (Ga. Ct. App. 2006)).

228. *Davis*, *supra* note 213 at 299.

229. Michael D. Pepson & John N. Sharifi, *Lego v. Twomey: The Improbable Relationship Between an Obscure Supreme Court Decision and Wrongful Convictions*, 47 AM. CRIM. L. REV. 1185, 1208 (2010) (see note 135).

230. Melanie D. Wilson, *An Exclusionary Rule for Police Lies*, 47 AM. CRIM. L. REV. 1, 20 (2010).

231. Many confessions are not recorded and there is no way to obtain this information.

232. See *Wilson*, *supra* note 236, at 12.

233. Kenneth Williams, *Mid-Atlantic People of Color Legal Scholarship Conference: The Death Penalty: Can it Be Fixed?* 51 CATH. U. L. REV. 1177, 1194 (2002).

234. *Id.* at 1195–96 n.113

235. FED. R. EVID. 601.

236. *Garrett*, *supra* note 6 at 80.

237. Police or prosecutors may assure witnesses that the perpetrator is in the lineup. This causes the witness to feel pressure to identify someone from the lineup.

they must be sure when they make an identification. The witness often chooses to identify someone even when they are not completely sure. When it has been suggested by police that a suspect is the person the witness saw, the witness may then subconsciously incorporate the defendant in their mind as the person who committed the crime.²³⁸ At this point, the witness has internalized the face of the suspect as the perpetrator. The witness has seen the suspect under non-threatening conditions and has a strong suggestion of their guilt. The victims of these crimes cannot be faulted for their misidentification in many cases.

Other classes of witnesses that often lead to misidentification are accomplices, co-defendants, and snitches. Prosecutors can offer benefits such as leniency and immunity from prosecution which can induce individuals to testify falsely.²³⁹ These types of witnesses often benefit from their testimony. Many of these witnesses are hardened criminals with many prior convictions. This information directly relates to the credibility of these witnesses. Information on deals made by prosecutors with witnesses must be communicated with the jury; otherwise, the jury will be unable to judge the credibility of the witness.²⁴⁰

A classic example of this issue occurs when a witness misidentifies a defendant and it is shown at trial that the witness did not make an honest mistake in identifying the defendant and that the police threatened and/or coerced the eyewitnesses into identifying the defendant.²⁴¹ The witness is then presented at trial with the person accused of the crime. This situation becomes even more problematic when the witness actually participated to some extent in the crime itself. Issues of coercion and deal-making arise because a would-be codefendant now becomes an eyewitness who may benefit from their own testimony.²⁴² The witness may commit perjury by saying they saw something they, in fact, did not see or by willfully lying in court.²⁴³ Prosecutor-induced unreliable eye witnesses testimony is a common error which receives harmless error review.²⁴⁴ The knowing use of perjured testimony to obtain a criminal conviction constitutes a violation of due process.²⁴⁵ Although the prosecutor may be aware of the possibility of witness perjury, the questionable witnesses are put on the stand and often contribute heavily to the ultimate conviction.

238. Garrett, *supra* note 6 at 80–81.

239. Fred C. Zacharias & Bruce A. Green, *The Duty to Avoid Wrongful Convictions: A Thought Experiment in the Regulation of Prosecutors*, 89 B.U.L. REV. 1, 9 (2009).

240. Gier, *supra* note 190.

241. Garrett, *supra* note 6 at 46.

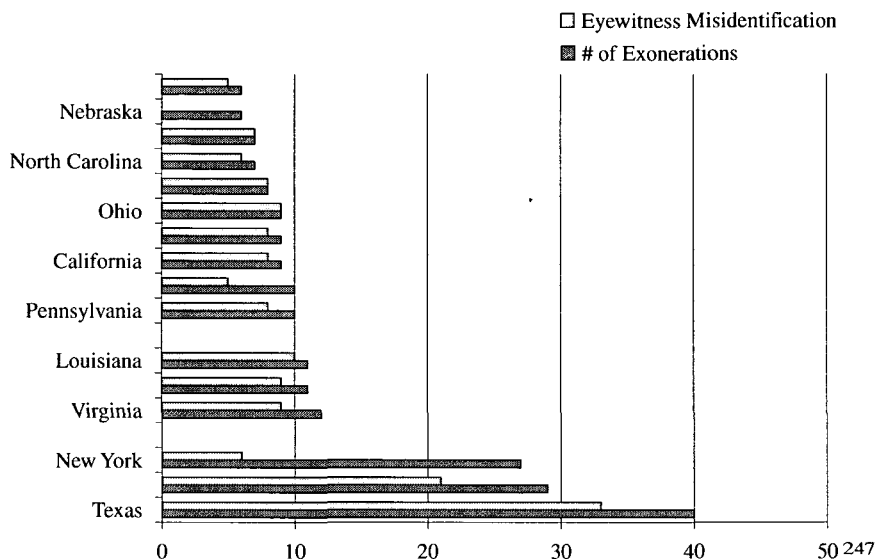
242. United States v. Balsiger, 644 F. Supp. 2d 1101, 1117 (E.D. Wis. 2009).

243. 18 U.S.C.A. § 1621 (2000).

244. In many cases, there is other evidence, sometimes circumstantial, that could be used to support the conviction.

245. *Jimerson*, 652 N.E.2d at 278.

The chart below graphically represents the high number of exoneration based on eyewitness identification errors.²⁴⁶ The majority of individuals that have been exonerated based on DNA evidence have included issues of witness misidentification. There is no distinction made based on which of these errors were caused by prosecutorial misconduct.



In *People v. Jimerson*, the error involved witness perjury.²⁴⁸ The State's primary witness had been promised a deal that her charges would be dropped if she implicated Jimerson.²⁴⁹ Paula Gray first gave a statement after being questioned for two nights in a hotel by police.²⁵⁰ Initially, when questioned, the witness, Paula Gray did not identify Jimerson.²⁵¹ She then testified before a grand jury where she implicated three individuals and Jimerson.²⁵² She later testified at a preliminary hearing and recanted her statement and denied all knowledge of and involvement of the crimes.²⁵³ The witness's testimony

246. The information listed on the chart was compiled from the Innocence Project

247. The Innocence Project, <http://www.innocenceproject.org/news/National-View.php> (this chart was created using information from the Innocence Project. States within the top three categories based on the number of exoneration were extracted and plotted against the number of cases in which witness identification was identified as a cause).

248. *People v. Jimerson*, 652 N.E.2d 278, 284 (1995).

249. *Id.* at 280.

250. Paula Gray, Center on Wrongful Conviction, Northwestern University School of Law, <http://www.law.northwestern.edu/wrongfulconvictions/exonerations/ilGraySummary.html>

251. *Jimerson*, 652 N.E.2d at 279–80.

252. *Id.* at 280.

253. *Id.*

was the only evidence implicating Jimerson to the crimes and therefore, the charges against him were dropped when she recanted her story.²⁵⁴ On three other occasions following the preliminary hearing, Ms. Gray gave sworn testimony denying knowledge of or involvement in the crimes. At some point later, Ms. Gray again implicated Mr. Jimerson and he proceeded to trial with the other defendants.²⁵⁵ At trial witness Gray was asked directly about whether she was promised anything from the State's Attorney, to which she answered "No." In fact, Ms. Gray had been promised that if she testified against Jimerson and the other defendants that the murder charges against her would be dropped.²⁵⁶ Ms. Gray was initially convicted of rape, perjury and two murders and was sentenced to 50 years imprisonment for those crimes²⁵⁷ but after testifying against the defendant, instead of being retried, the charges were dropped and she was only convicted of perjury.²⁵⁸ Although Ms. Gray recanted, and was later convicted of perjury, her testimony was used to later convict Verneal Jimerson of two murders.²⁵⁹

Unreliable eye witness testimony can lead to wrongful conviction. The court in *Jimerson*, recounts that, "the jury's estimate of the truthfulness and reliability of a given witness may well be determinative of guilt or innocence, and it is upon such subtle factors as the possible interest of testifying, falsely that a defendant's life or liberty may depend."²⁶⁰ For the reasons identified through the *Jimerson* illustration, eyewitness testimony must be highly scrutinized. Conduct surrounding identifications must not be coercive, and special attention must be paid to ensure that justice is served.

The principle that a State may not knowingly use false evidence, including false testimony to obtain a tainted conviction, implicit in any concept of ordered liberty, does not cease to apply merely because the false testimony goes only to the credibility of the witness.²⁶¹ The individual prosecutor has a duty to learn of any favorable evidence known to the others acting on the government's behalf in the case including the police. Such evidence is material if there is a reasonable probability that, had the evidence been disclosed to the defense, the

254. *Id.* (other evidence was available against the other defendants in the Jimerson case. There was an uninvolved witness who was able to place the other three defendants at the crime scene but not Mr. Jimerson). *Id.* at 287.

255. *Id.*

256. *Id.* at 284 (the murder charges against Ms. Gray were dropped and she was convicted of perjury. The State's brief on appeal included language that "the jury did not know that the People had agreed to drop the murder charges against Paula if she testified against the defendant [Jimerson]").

257. Her convictions were reversed based on her attorney's conflict of interest, the only charges brought during retrial were for perjury. *Id.* at 286.

258. *Id.*

259. *Id.*

260. *Id.*

261. *Id.*

result of the proceeding would have been different. In the *Jimerson* case, the State contended that the witness's perjured testimony, the only evidence against Jimerson, should have been considered a harmless error.²⁶²

C. *Withholding Exculpatory Evidence and Misuse of Forensic Science*

Withholding evidence is conceivably the worst type of misconduct. It undermines the legal process and does not allow the jury to make a decision beyond a reasonable doubt.²⁶³ In a study of wrongful conviction and exoneration in Texas, it was found that in over a quarter of cases where material evidence was withheld by prosecutors, inmates were later found innocent.²⁶⁴ One major problem with identifying this type of misconduct is that there is no clear way to determine which evidence is exculpatory.²⁶⁵ Prosecutors often also affect the course of an investigation and may account for failure to investigate other suspects.²⁶⁶

DNA evidence is different than other types of evidence which can be excluded, manipulated and misused.²⁶⁷ Because DNA evidence is so reliable, the mishandling of DNA evidence is even more critical.²⁶⁸ There has been a rise in the number of cases of fabrication of evidence.²⁶⁹ Evidence can be fabricated and/or manipulated during investigation or by forensic crime labs.²⁷⁰ Crime lab misconduct is the most obvious site for preventing DNA evidence abuse, yet, prosecutors also have a responsibility.²⁷¹

Evidence can be misused by prosecutors.²⁷² For example, in order to win a case, the prosecutor may knowingly or recklessly use inaccurate DNA evidence.²⁷³ In many instances, prosecutors have unwritten agreements with crime labs. This is not in the form of communication but can be seen by the favorable interpretation or prosecution-friendly analysis by crime lab employees.²⁷⁴ Crime lab employees feel

262. *Id.* at 286.

263. Gier, *supra* note 169.

264. *Id.*

265. Albert D. Brault & Timothy F. Mahoney, *A Standard for Fair Trials*, The Washington Post (D.C.) May 17, 2009, at A23.

266. Ephraim Unell, *A Right Not to be Framed: Preserving Civil Liability in the Face of Absolute Immunity*, 23 *GEOGLE* 955, 958, (2010).

267. See Eckroth, *supra* note 26 at 449-452 (Implying that the misuse of DNA evidence can have disastrous effects).

268. See Edward Imwinkelried & D.H. Kaye, *DNA Typing: Emerging or Neglected Issues*, 76 *WASH. L. REV.* 413 (2001) (discussing issues related to DNA evidence).

269. Garrett, *supra*, note 6 at 94.

270. *Id.*

271. See Eckroth, *supra* note 26 at 451.

272. See generally *id.* at 451 (giving ways that prosecutors may misuse DNA).

273. *Id.* at 451.

274. *Id.* at 449.

a responsibility to provide a desirable outcome and often see themselves on the same side as the prosecutors and police.²⁷⁵ These desires for approval may be further bolstered by a prosecutor's pressure for favorable interpretation of the DNA evidence.²⁷⁶ These evidence manipulation issues do not receive harmless error review but do raise overlapping issues in the context of wrongful conviction and prosecutorial misconduct.²⁷⁷ Crime labs in West Virginia, Pennsylvania and Houston, have been investigated for abuse of DNA evidence and criminal defendants.²⁷⁸

D. *Wrongful Conviction, DNA Evidence and Exoneration*

The Innocence Project leads the national effort to exonerate the wrongfully convicted using DNA evidence.²⁷⁹ DNA evidence is extremely useful; therefore, it is unrealistic to argue against using DNA and genetic information in the criminal justice setting. When DNA evidence and databases are used for the purposes of exonerating the wrongfully convicted, an argument can be made for expanding the scope of the use of the databases.²⁸⁰ The flip side of this beneficial use of DNA evidence is that it can also be abused.²⁸¹ As genetic technology increases the possibility of misuse of the information is magnified.²⁸² With the prevalent history of racial discrimination in this country, use of genetic information should be highly scrutinized and regulated to avoid the wrongs of the past. Scientific evidence, such as handwriting analysis and hair comparisons, has been used in the criminal justice system long before DNA testing was available. There have been numerous examples of the misuse of scientific evidence either by the use of unsupportable scientific conclusions, fraud by dishonest scientists²⁸³ and in the worst cases, evidence that was planted by police.²⁸⁴

275. *Id.* at 449.

276. *Id.* at 451.

277. Garrett, *supra* note 6 at 95.

278. Eckroth, *supra* note 26 at 443.

279. See generally The Innocence Project, <http://www.innocenceproject.org> (last visited October 30, 2010).

280. Richard A. Rosen, *Reflections on Innocence*, 2006 WIS. L. REV. 237, 276 (2006).

281. See Aaron Stevens, *Arresting Crime: Expanding the Scope of DNA Databases in America*, 79 TEX. L. REV. 921 (2001) (discussing concerns related to the use of DNA evidence and expanding criminal DNA databases).

282. See generally, Catherine Valerio Barrad, *Genetic Information and Property Theory*, 87 NW. U.L. REV. 1038 (1993) (discussing other types of misuse of genetic information unrelated to use of DNA as scientific evidence).

283. Rosen, *supra* note 280.

284. Alberto B. Lopez, *\$10 and a Denim Jacket? A Model Statute for Compensating the Wrongly Convicted*, 36 GA. L. REV. 665, 677 n.62 (2002) (stating that police may manufacture evidence).

Exonerations of individuals who have been wrongfully convicted are on the rise.²⁸⁵ One reason attributed to the large number of false convictions is based on the use of DNA evidence.²⁸⁶ Indisputable DNA evidence continues to be used to prove innocence of the wrongfully convicted.²⁸⁷ Scientific evidence is often viewed as extremely reliable and juries of untrained and inexperienced people often do not fully understand the intricacies of its use.²⁸⁸ There are challenges with resolving expert testimony, but rarely does the jury fully grasp the magnitude and complexity of what is being presented.²⁸⁹ The same science that is allowing for the exonerations may help to produce the convictions in the first place.²⁹⁰ Scientific evidence has been used to produce the initial wrongful conviction.²⁹¹ Other common causes for wrongful conviction include bad lawyering, fraudulent or incompetent laboratory analysis, prosecutorial misconduct, mistaken identification, false confessions and false testimony.²⁹² Even DNA evidence has been later shown to lead to incorrect factual conclusions.²⁹³ DNA evidence is not one hundred percent accurate and other evidence is still needed in criminal cases in addition to the DNA evidence.²⁹⁴ Possibilities exist for cross-contamination and mixing up samples, faulty analysis and biased interpretation.²⁹⁵ An example of this can be seen with the *Sutton*²⁹⁶ case, where a crime lab employee stated that there was a unique DNA match with the defendant when actually the DNA

285. Death Penalty Information Center, <http://www.deathpenaltyinfo.org/innocence-and-death-penalty#inn-yr-rc> (last visited Oct. 7, 2010).

286. Steven B. Duke, Ann Seungeun-Lee & Chet K.W. Pagar, *A Picture's Worth A Thousand Words: Conversational versus Eyewitness Testimony in Criminal Convictions*, 44 AM. CRIM. L. REV. 1, 45 (2007).

287. Rosen, *supra* note 280 at 238–39.

288. Robert D. Myers et al., *Complex Scientific Evidence and the Jury*, 83 JUDICATURE 150, 152 (1999) (suggesting that critics believe that jurors who are untrained in science are ill-equipped at sounds fact finding. But the author suggests that jurors should be more involved in the fact finding rather than just serving as passive observers).

289. *Id.*

290. Rosen, *supra* note 280, at 239.

291. *Id.* at 276.

292. See e.g. Duke *supra* note 35 at 46.

293. Robert M. Hardaway, *Beyond a Conceivable Doubt: The Quest for a Fair and Constitutional Standard of Proof in Death Penalty Cases*, 34 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 221, 226 (2008) (citing Greta Proctor, *Reevaluating Capital Punishment: the fallacy of a foolproof system, the focus on reform, and the international factor*, 42 GONZ. L. REV. 211, 212 (2006)).

294. Eckroth, *supra* note 26 at 437.

295. Harry G. Levine, Jon B. Gettman, Craig Reinerman & Deborah P. Small, *Drug Arrests and DNA: Building Jim Crow's Database*, Council for Responsible Genetics Forum on Racial Justice Impacts of Forensic DNA Databanks, July 19, 2008, available at <http://www.councilforresponsiblegenetics.org/pageDocuments/0RRXBG-GAE1.pdf>.

296. Eckroth, *supra* note 26.

would have matched one in every sixteen African-American males.²⁹⁷ Errors with DNA evidence can occur in a variety of ways such as: with the collection of the samples, in the crime lab, and with the presentation of the evidence by the prosecutor. With the possibility of errors related to DNA evidence, courts should be hesitant to deem these errors harmless.

The main claims leading to wrongful conviction are systemic procedural issues including ineffective assistance of counsel, suggestive eyewitness testimony, coerced confessions and fabrication of evidence.²⁹⁸ These are all claims identified as prosecutorial misconduct. Eyewitness identification mistakes are the leading cause of wrongful convictions.²⁹⁹ Fabrication of evidence has been identified in many exoneration cases.³⁰⁰ The prosecutor may influence eyewitness identification³⁰¹ and fabrication as well as other mishandling of evidence.³⁰²

The Innocence Project collects data on wrongful convictions and exonerations and is at the forefront for litigation and legislation in this area.³⁰³ According to the Innocence Project, Texas, Illinois and New York have had the highest number of exonerations.³⁰⁴ The next set of states includes Virginia, Florida and Louisiana.³⁰⁵ The third category of states has between six to ten exonerations: Pennsylvania, Oklahoma, California, Massachusetts, Ohio, Georgia, North Carolina, Missouri, Nebraska, and West Virginia.³⁰⁶ These sixteen states have exonerated 211 of the 259 exonerees.³⁰⁷ In 152 of these cases, witness misidentification was an identified cause for the wrongful conviction.³⁰⁸ DNA evidence has played a major role in these exonera-

297. Eckroth, *supra* note 26 (The evidence further showed that another sample found at the crime scene would have excluded the defendant as the culprit).

298. Garret, *supra* note 6 at 54 n.90–95.

299. Garrett, *supra* note 6 at 80.

300. Garrett, *supra* note 6 at 94.

301. Eyewitness identification issues include: Testimony by co-defendants and other accused parties, coercion of witnesses to give favorable testimony, and collaborations with police and other suggestive practices.

302. For purposes of this article, fabrication of evidence includes mishandling, misuse, manipulation, misinterpretation

303. See generally, www.innocenceproject.org

304. The Innocence Project, <http://www.innocenceproject.org/news/national-view.php> (showing that each of these states has had over 20 exonerations: Texas — 40, Illinois — 29, New York — 27).

305. The Innocence Project, <http://www.innocenceproject.org/news/national-view.php> (showing how each of these states has between 11 – 19, this category is very small. All three states in this second category are on the lower end of the range: Virginia — 12, Florida — 11, Louisiana — 11).

306. The Innocence Project, <http://www.innocenceproject.org/news/national-view.php> (showing the amount of exonerations by state: Pennsylvania — 10, Oklahoma — 10, California — 9, Massachusetts — 9, Ohio — 9, Georgia — 8, North Carolina — 7, Missouri — 7, Nebraska — 6 and West Virginia — 6)

307. www.innocenceproject.org/news/national-view.php

308. *Causes of Wrongful Conviction by State*, THE INNOCENCE PROJECT, <http://www.innocenceproject.org/news/CauseView1.php> (last visited Mar. 6, 2011).

tions.³⁰⁹ In approximately forty percent of the cases, the true perpetrator of the crime was identified using DNA evidence.³¹⁰

After reviewing the Innocence Project data, several high profile cases were identified in which DNA evidence played a major role in the exoneration. These cases also include the identified common causes of wrongful conviction and types of prosecutorial misconduct.³¹¹ Interestingly, most of these cases have unpublished opinions.³¹² The best information available for the cases is from the Innocence Project because of their extensive information about each of the exoneration cases.³¹³ The lack of published exoneration opinions is problematic because it is difficult to identify and fully analyze the problem of prosecutorial misconduct. The cases selected are: Texas—Calvin Washington, New York—Alan Newton, and Massachusetts—Neil Miller.

Calvin Washington's case relied heavily on forensic evidence.³¹⁴ He was convicted of murder, burglary and sexual assault.³¹⁵ A t-shirt was found at his home which was suggested to contain the victim's blood at trial.³¹⁶ However, later DNA testing proved that the blood on the shirt did not come from the victim and other testing of fluids from the victim did not come from Washington.³¹⁷ After 13 years in jail, Washington was exonerated.³¹⁸ Issues of eye witness testimony and misused forensic evidence contributed to Washington's original conviction.

Alan Newton was convicted of rape, robbery, and assault.³¹⁹ Newton's case had a classic witness identification issue.³²⁰ The witness identified Newton after viewing over 200 photographs while she was in the hospital after the assault.³²¹ Newton continually requested re-analysis of the rape kit which was purportedly lost, yet it turned out to

309. www.innocenceproject.org

310. www.innocenceproject.org/know.

311. Causes identified – witness misidentification, mishandling of evidence.

312. Nearly all of the selected opinions discussed in this article from the DNA exonerations have no published opinions. There is no way to cite these opinions and analogize situations except to use the Innocence Project data.

313. See generally, www.innocenceproject.org.

314. Washington's conviction was based in part on bite mark analysis which did not suggest that the bite came from him but the codefendant. The witness who testified about the bite marks implicated Washington in his testimony. Other witnesses also testified that Washington confessed to the crimes.

315. *Know the Cases: Calvin Washington*, THE INNOCENCE PROJECT, http://www.innocenceproject.org/Content/Calvin_Washington.php (last visited Mar. 6, 2011).

316. *Id.*

317. *Id.*

318. *Id.*

319. *Know the Cases: Alan Newton*, THE INNOCENCE PROJECT, http://www.innocenceproject.org/Content/Alan_Newton.php (last visited Mar. 6, 2011).

320. *Id.*

321. *Id.*

be located in the exact place that was listed in the initial evidence voucher.³²²

Neil Miller's conviction for rape and robbery was based on eyewitness testimony and misuse of DNA evidence.³²³ Miller was identified by the victim from a photo book.³²⁴ The most controversial evidence in this case was the testimony by a scientist from the Boston crime lab.³²⁵ There were two serological samples in the case.³²⁶ One of the samples excluded Miller and the other one had markers which matched both the victim and Miller.³²⁷ Although the second sample also matched the victim, this was not made clear to the jury and Miller was convicted.³²⁸ In this case, the DNA evidence was not adequately explained to the jury in a way that it could be used reliably.

V. LEGAL REGULATIONS AND POLICY CONSIDERATIONS

A. *Policy Considerations*

Recognizing the utility of using DNA evidence as a tool for exonerating the innocent, it is paramount to the forward progress of criminal justice that this type of evidence be used carefully. With the prevalence of prosecutorial misconduct and the reliability of DNA evidence, this evidence is different than other evidence. No other type of evidence has been used to exonerate so many people who were wrongfully convicted. With the exception of eye witness testimony, no other type of evidence has such a high reliability and influence over the jury. Because of the belief in DNA evidence as infallible, errors, mishandling, misuse, and manipulation of DNA evidence is absolutely intolerable. Courts should exercise caution before rendering such errors harmless. The wide range of training of lab technicians handling the evidence, facilities which analyze the evidence and lack of federal regulation regarding DNA evidence creates a myriad of procedural and process issues. Three policy recommendations to address issues of prosecutorial misconduct and the use of DNA as scientific evidence are (1) federal regulation and oversight of DNA evidence, (2) juror training, and (3) mandatory CLE for attorneys actively practicing criminal law.

B. *Regulation & Accreditation*

It has been suggested that a federal agency, the Office of Forensic Science Improvement and Support, should be created within the De-

322. *Id.*

323. *Know the Cases: Neil Miller*, THE INNOCENCE PROJECT, http://www.innocenceproject.org/Content/Neil_Miller.php (last visited Mar. 6, 2011).

324. *Id.*

325. *Id.*

326. *Id.*

327. *Id.*

328. *Id.*

partment of Commerce.³²⁹ This agency would collaborate with the existing National Science Foundation and the National Institute of Standards and Technology.³³⁰ While creating a new agency would solve many problems, it does not address one of the most important issues: the law does not keep up with science. A better solution would be to locate the agency within the Department of Justice. By including the agency within the Department of Justice, the actions would directly relate to criminal justice and be easily accessible to U.S. Attorneys and the courts.³³¹

C. *Requiring CLE in Scientific Evidence for Attorneys*

One of the problems described with the use of DNA as scientific evidence is the lack of understanding on the part of attorneys about the use of DNA evidence. Because this evidence is so powerful and is used increasingly more frequently, a better understanding of this evidence must be required for all prosecutors and defense attorneys to try criminal cases. The use of DNA as scientific evidence has moved beyond just rape and sexual assault cases and is also being used in murder cases as well. DNA evidence is also being used in property cases.³³² State and local bar associations host Continuing Legal Education (CLE) workshops, which lawyers must attend to remain active in the profession. As the legal profession determines deficiencies, new CLE requirements emerge. The amount of CLE credit and the composition of these credits required each year for attorneys varies by state.³³³ In addition to the regular substantive area based CLE requirements, some states require professional responsibility CLE hours as well as substance abuse and mental health training.³³⁴ As the profession recognizes deficiencies in lawyer training and areas of concern, new requirements are added. To combat the incidence of alcoholism and mental health issues prevalent in the legal profession, CLE requirements have been modified to address these issues. It is clear that the use of DNA as scientific evidence is increasing and will likely continue to increase for many years to come. The legal profession must be responsible and vigilant to ensure that justice is served. For every attorney that actively practices criminal law, a two-hour CLE requirement should be instituted in each state.³³⁵ This could be either a

329. Just Science Coalition: A Plan for Reform, <http://www.just-science.org/reform.html> (last visited March 2, 2011).

330. *Id.*

331. *Id.*

332. *See generally*, <http://www.ojp.usdoj.gov/nij/topics/forensics/evidence/dna/property-crime/welcome.htm>.

333. MANDATORY CLE: MCLE JURISDICTIONS, <http://www.abanet.org/cle/mcleview.html> (last visited March 20, 2011).

334. *Id.*

335. Active practice of criminal law includes attorneys that have at least 15% of their yearly caseload as criminal cases.

yearly or every other year requirement. The yearly requirement would likely be best because there is so much information that should be given and the two hour requirement will likely not address all that needs to be taught. This would create an educated cadre of attorneys that could more accurately administer justices because they better understand the evidence they are presenting.

To ensure uniform presentation of these requirements, the American Bar Association (ABA) should provide online CLE sessions. These scientific evidence and DNA CLE workshops should be divided by interest area from basic to advanced. The online format would provide attorneys the opportunity to complete the workshops at home at their leisure. To maintain accountability for these online sessions, questions should be dispersed intermittently within the CLE course to make sure that the person watching the course actually understands the material being presented. With this format, the attorney would have the opportunity to complete the CLE at convenient times and not all at one sitting.

D. *Juror Training*

Jurors are often not knowledgeable about the most recent science and forensic evidence. By creating a general fifteen minute video to be shown in all cases where DNA evidence will be used, jurors will better understand the use of DNA evidence. Jurors need to know how DNA evidence is used and what it can prove and what it cannot prove. Jurors should also be informed about the hallmarks of wrongful conviction and things to watch out for and be careful of. It may be argued that this is the duty of the defense attorney however, an impartial statistical approach would be better. If jurors were told about the frequency of eyewitness misidentification and issues of false or coerced confessions, these problems may be considered when viewing the facts of each case.

VI. CONCLUSION

A narrow exception should be created within the harmless error framework. The exception should exclude harmless error review of prosecutorial misconduct involving DNA evidence. This misconduct could take the form of withholding DNA evidence, questionable practices between prosecutors and crime labs, misinterpretation and misuse of DNA evidence when presenting at trial, and other issues related to DNA evidence.